# **Progress Report**

on

# Integrated Drought Management Programme (GWP CEE)

Work package : Demonstration Projects (WP 5)

Activity : Drought management by agricultural practices and measures increasing of soil

water holding capacity (5.1.)

# Milestone 1 : Set up of experiments. Starts of the theoretical study.

## Participants of the project:

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**Targets of research :** To propose some different farming methods for soil water holding capacity increase as measures for water holding increase and water regimes improvement in agricultural land.

# **Mileston 1 Sumary Report**

## Set up of experiments. Start of theoretical study.

The soil plays an important role as natural reservoir of water. It means that soil quality has critical position in potentials for acceptable water regime in the country and in strugle against of drought and flooding as well. From this poit of view the farming systems have a significant impacts on water regimes in agricultural land. It is by soil cultivations and protection of all soil properties which are responsible for soil water regulations. In this project activity we want to find and recomend some practical proposals for farmers how to increase the soil water holding capacity as soil parameter favorably working in those problems. It could be very effective because of affects of that on large areas of agricultural soils.

## Set up of field experiments :

- subsoiled fields and traditionaly used fields in different soil-ecological conditions(SK,CZ),
- ploughed fields with green manure application (CZ),
- ploughed fields with manure application(CZ),
- in field measurement of saturated hydraulic conductivity by double ring infiltrometer(CZ),
- in field penetrometric study of sobsoiled and not subsoiled soils (SK),
- field infiltration experiments by water saturation of soil (SK),
- preliminary yield evaluations of field experiments (SK),

- field experiment on impact of two tillage systems (conventional and simplified) on retention capacity of soil including collection of soil maps and busines farming documents (PL),

- soil samples took off for later laboratoty experiments (PL),

- field experiments in two different places with conservation tillage in comparison to conventional mouldboard ploughing with additional harrowing, disking, levelling, etc.(SL),

- long-term field experiments focused on comparison of composting tillage to traditional mouldboard ploughing (SL).

## Performance of laboratory experiments :

Many kinds of laboratory measurements of soil water regimes have been done as scientific supports of field experiments (see national reports). Many others laboratory test will be carried out in nearest days.

## Another activities :

Theoretical study and knowledge collections to subjects of this project. Soil mapping and collections of soil maps.

Public awarenes increase by newspaper article.

#### **Results** :

Only preliminary results are available from till now research (see enclosed national reports). As main conclusions we can collect following:

- subsoiling increased significantly the soil profile conditions for water infiltration into the deeper layers of soil profile,

- higher water infiltration into the subsoiled soils have been preliminary proved,
- higher yields of plants have been preliminary achieved after the subsoiling and by another systems of soil cultivation,
- increase of water infiltration into the soil after the organic fertilizers application has not been disproved,
- some another farming practices (muldboard, specific conservatin tillage) can also affect the rate of water holding capacity of agricultural land,
- composting tillage is also verified as perspective approache for soil water holding capacity increase.

Mileston 1 is planned as general information about set up of experiments and about first performed analysis including buil-up of theoretical background to evaluate achieved experimental results including of real perspectives of research to practical recomendations for agricultural practices.

As sumary of this report we can say that till now research within this Activity brings-up some real proposals for several possible approaches for land water regime regulatios by agricultural practices. Therefore, there are reasons for the future support of this project.

From national reports sumarized by

Pavol Bielek, activity leader

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